Effect of Earthworm (*Lumbricus rubellus*) Flour Againts Histological Profile of Several Organs and Transaminase Enzyme Level in Rat That Infected by *Salmonella typhi*

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BACKGROUND

Typhus Drug

Typhoid fever → *Salmonella typhi*

Traditionally Java Society

Potention:
Enzyme in the worm are lysozyme, Hydrolase lumbrokinase, lumbricine.

Earthworm

Lumbricus rubellus and *Pheretima aspergillum*

Doses Effect (32%; 48% and 60%) and giving duration between 7 and 14 days in vitro

Formulation Problem

- Whether the concentration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi*?
- Whether the duration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi*?
- Whether interaction between concentration and duration of administration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi*?

BENEFIT OF RESEARCH

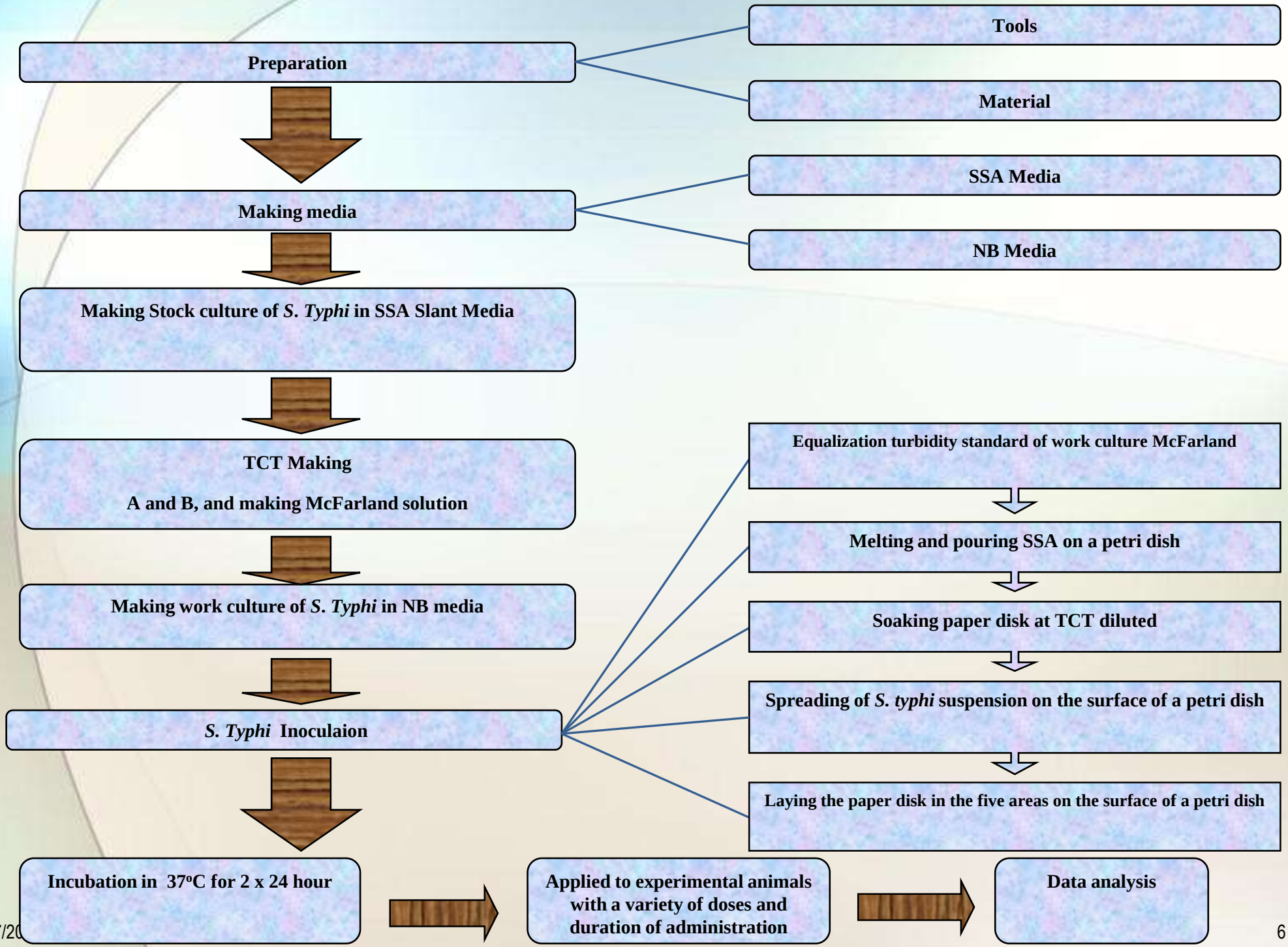
Theoretically, the researchers want to provide scientific information on the effects of flour eartworms to the rat's intestine and lever and transaminase enzym that infected by *Salmonella typhi*

Pratically, researchers would like to inform the public about the benefit of eartworms flour to cure the disease caused by *Salmonella typhi*.

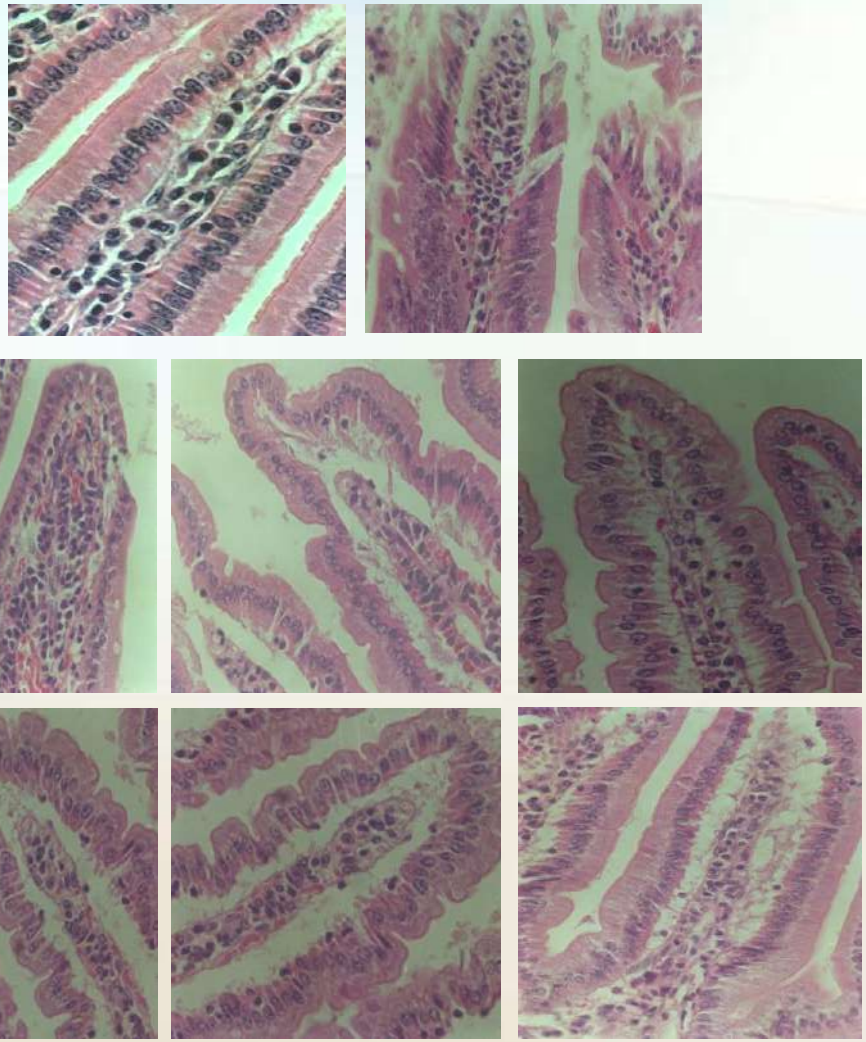
RESEARCH HYPOTHESES

The concentration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi*

- **The duration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi***
- **The interaction between concentration and duration of administration of eartworms flour affect the histological profile of the rat's intestine and kidney and transaminase enzym that infected by *Salmonella typhi***


Preparation
Tools
Material
Making media
SSA Media
NB Media
Making Stock culture of S. Typhi in SSA Slant Media
TCT Making
A and B, and making McFarland solution
Making work culture of S. Typhi in NB media
S. Typhi Inoculaion
Equalization turbidity standard of work culture McFarland
Melting and pouring SSA on a petri dish
Soaking paper disk at TCT diluted
Spreading of S. typhi suspension on the surface of a petri dish
Laying the paper disk in the five areas on the surface of a petri dish
Incubation in 37ºC for 2 x 24 hour
Applied to experimental animals with a variety of doses and duration of administration
Data analysis

The affect of eartworms flour to the histological profile on the rat's intestine



Treatment Group

K - : Negative control (no treatment)

K + : Positive control (infected by *Salmonella typhi* without giving eartworms flour)

P1. Infected by *Salmonella typhi* + 32% eartworms flour for 7 days

P2. Rat infected by *Salmonella typhi* + 48% eartworms flour for 7 days

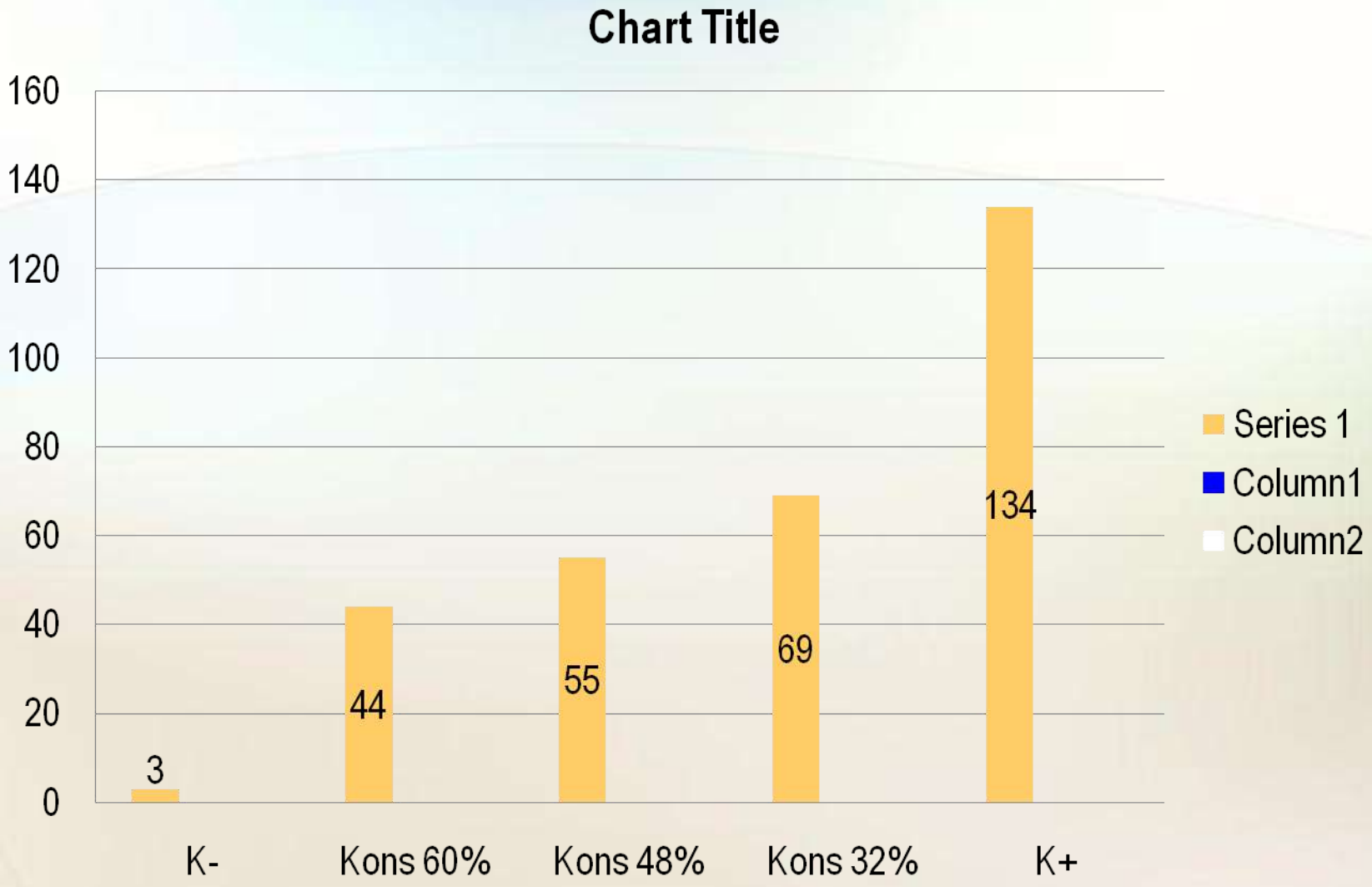
P3. Rat infected by *Salmonella typhi* + 60% eartworms flour for 7 days

P4. Rat infected by *Salmonella typhi* + 32% eartworms flour for 14 days

P5. Rat infected by *Salmonella typhi* + 48% eartworms flour for 14 days

P6. Rat infected by *Salmonella typhi* + 60% eartworms flour for 14 days

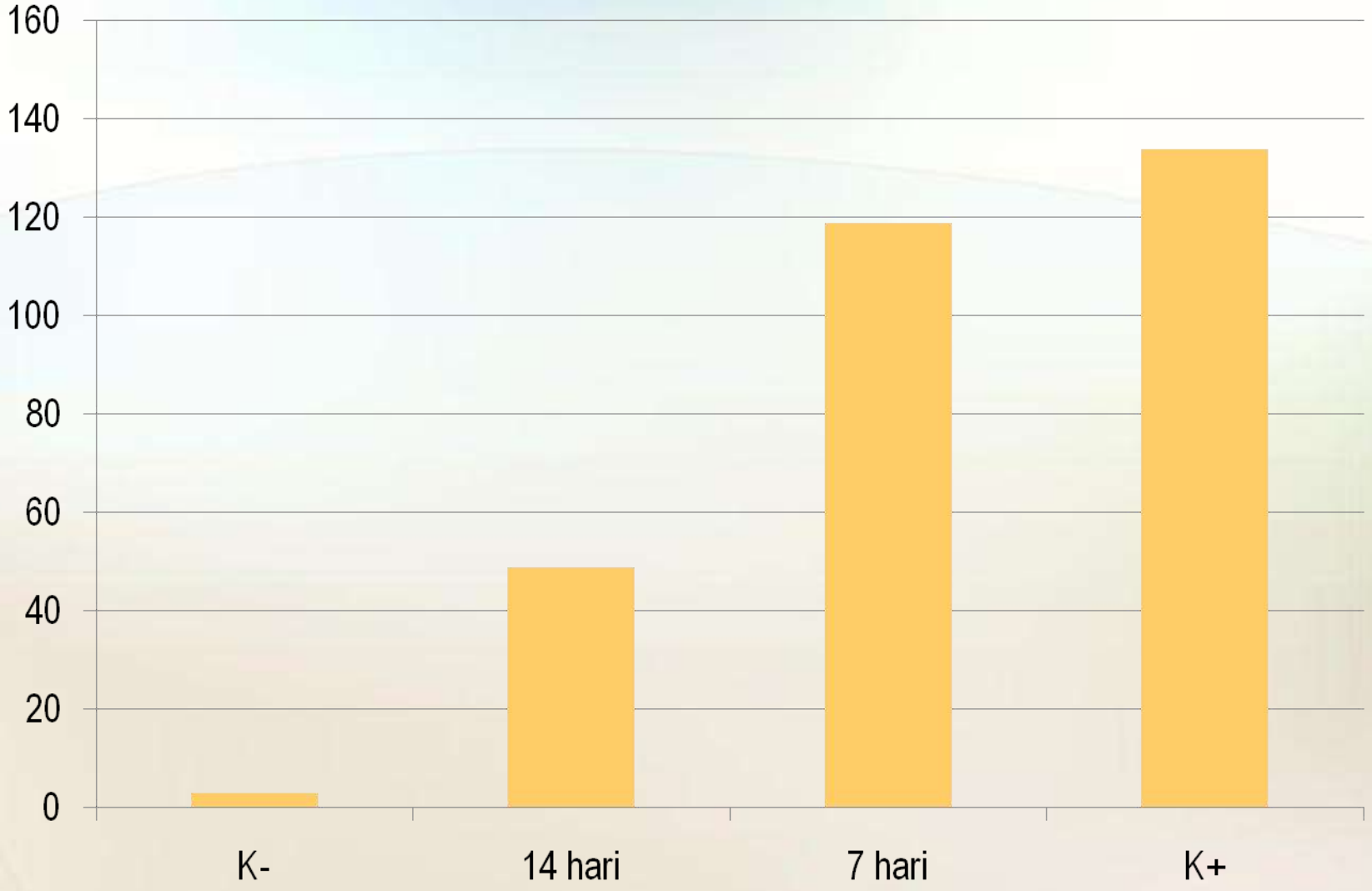
The level of damage in the rat small intestine with variation of flour earthworms concentration



LSD 1% of damage level in the rat small intestine with variation of flour earthworms concentration

TREATMENT (Concentration variation)	AVERAGE	NOTATION
K (-)	3	a
60	44	b
48	55	c
32	69	d
K (+)	134	e

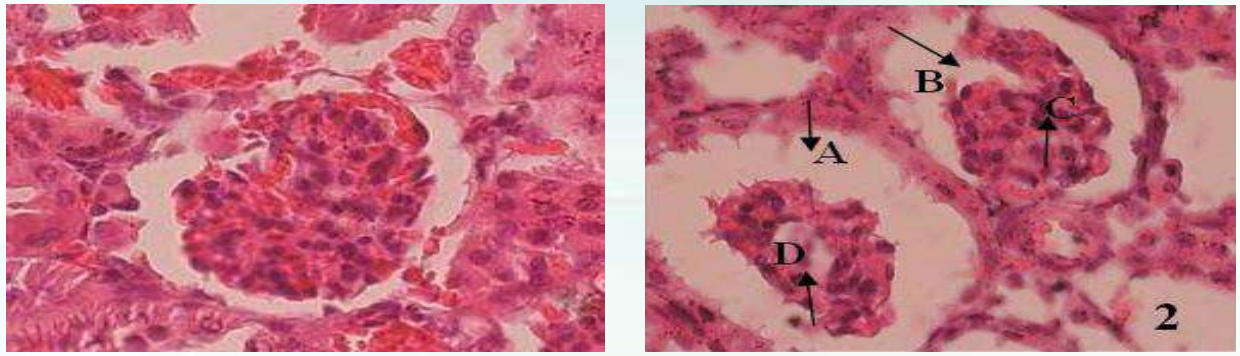
The level of damage in the rat small intestine with duration of earthworms flour administration

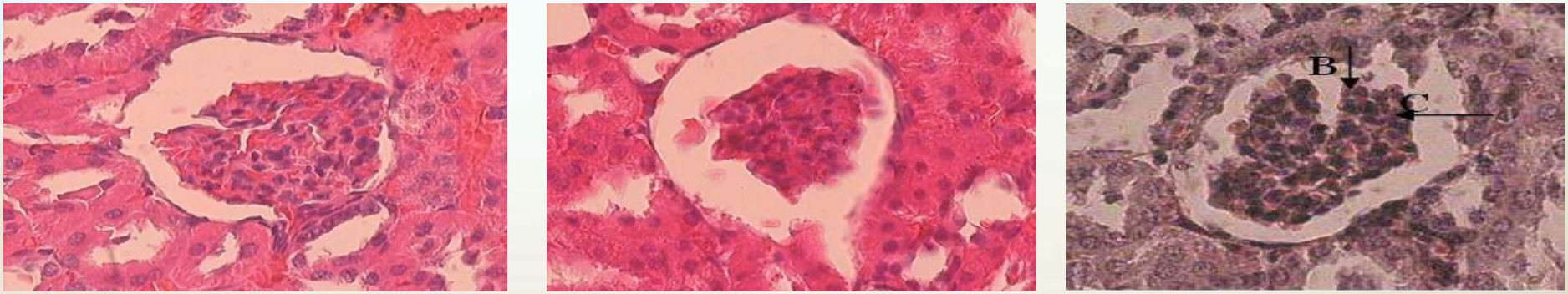


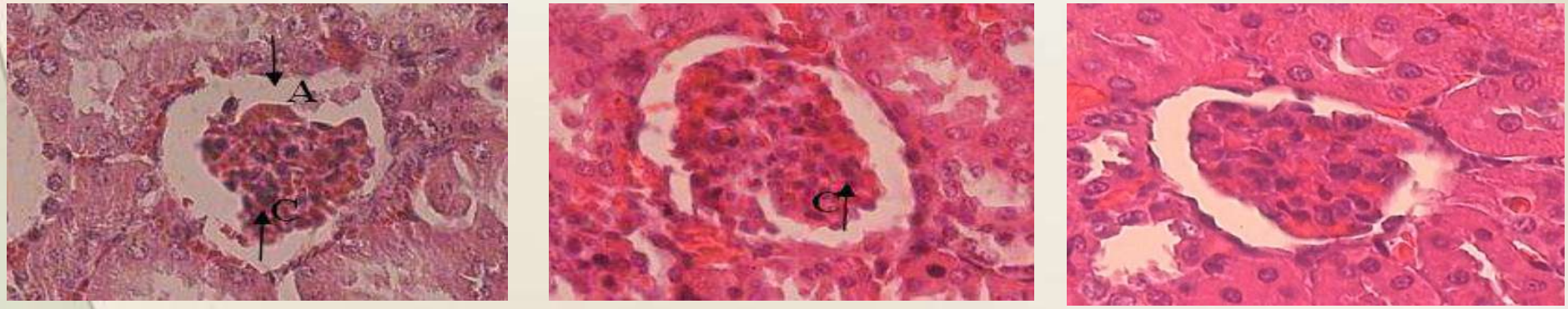
LSD 1% of damage level in the rat small intestine with duration of earthworms flour administration

Treatment (Duration of administration)	AVERAGE	NOTATION
K (-)	3	a
14 days	49	b
7 days	119	c
K (+)	134	d

The affect of eartworms flour to the histological profile on the rat's kidney







LSD 1% of damage level in the rat kidney on earthworms flour concentration

TREATMENT (Concentration variation)	AVERAGE	NOTATION
K (-)	5	a
60	42	b
48	53	c
32	66	d
K (+)	135	e

LSD 1% of damage level in the rat kidney with duration of earthworms flour administration

Treatment (Duration of administration)	AVERAGE	NOTATION
K (-)	5	a
14 days	46	b
7 days	115	c
K (+)	135	d

LSD 1% transaminase enzyme on earthworms flour concentration and duration of administration

CONCENTRATION	(Duration of administration (day)	AVERAGE	NOTATION
K (-)	14	17,48 ± 2,94	a
K (-)	7	22,86 ± 4,79	a
60%	14	46,06 ± 2,06	b
48%	14	53,41 ± 4,08	bc
60%	7	59,96 ± 2,75	c
48%	7	66,81 ± 1,71	cd
32%	7	79,02 ± 2.38	de
32%	14	83,49 ± 9,52	ef
K (+)	7	89,05 ± 4,79	g
K (+)	14	109,60 ± 2,94	h

CONCLUSION

Giving earthworms flour affect the histological profile of improvement rat's intestine and kidney . Effective concentration of 60%.

Giving earthworm flour 14 days, showed histological improvement effect to the intestine and kidney aof rat significantly compared with the duration of 7 days.

Interaction between concentration and duration of administration of flour earthworm does not affect to the histological profile of rat's intestine and kidney but affect to the decreasing of transaminase enzym. The effective treathment is 60% and 14 days.

THANK YOU

Workshop on Plant Products Chemistry & International Symposium on Medicinal-Aromatic Plants

ABSTRACT BOOK

4-7 June, 2013

Kaya Izmir Thermal & Convention

Balçova, Izmir, Turkey

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It is a pleasure to welcome you to the "Workshop on Plant Products Chemistry" and the "International Symposium on Medicinal & Aromatic Plants".

We are excited to present a program featuring a roster of internationally recognized researchers in the field of Medicinal & Aromatic Plants and Plant Products Chemistry. We wish to extend our thanks to the speakers and participaters for their willingness for joining us.

If there is anything we can do to make your visit enjoyable, please feel free to contact one of the members of the Organizing Committee.

Thank you all for your participation.

Sincerely,

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and the

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PROGRAMME

International Symposium on Medicinal & Aromatic Plants, 5 - 7 June, 2013, İzmir, TURKEY

Wednesday, 5 June, 2013

HOUR	ACTIVITY
08.30-10.30	**REGISTRATION**
10.30-12.00	**Welcome and Introduction,** **Chairperson: Prof. Dr. M. Iqbal Choudhary** **Prof. Dr. Münir Öztürk** **Vice-Rector of Ege University** **Prof. DATO' IR. Dr. M. Saleh Jaafar (University of Putra Malaysia Deputy Vice Chancellor)**
12.00-13.00	**LUNCH**
	Chairperson: K. Hüsnü Can Başer
13.00-13.40	**M. Iqbal Choudhary,** University of Karachi, International Center for Chemical and Biological Sciences, Pakistan *"Discovery of Antiepiletic Natural Products from Plants of Family Ranunculaceae"*
13.40-14.10	**Hidetoshi Yamada**, Kwansei Gakuin University, School of Science and Technology, Japan *"Synthesis of Chiral Hexahydroxydiphenoyl Compounds"*
14.10-14.40	**Nurhayat Tabanca,** University of Mississippi, National Center for Natural Products Research, United States *"Plant based tick repellents a source of alternative personal protection"*
14.40-15.10	**Khozirah Shaari**, University Putra Malaysia, Laboratory of Natural Products, Institute of Bioscience, Malaysia *"Searching For Bioactive Molecules From Malaysian Flora : From Reductionist To Hollistic Approach "*
15.10-15.30	**COFFEE BREAK**
	Chairperson: Tayfun Ersöz
15.30-16.00	**Ulvi Zeybek,** Ege University, Faculty of Pharmacy, Turkey *"Historical and pharmaceutical aspects of Turkish rose oil and rose water"*

16.00-16.30	İrem Tatlı, Hacettepe University, Faculty of Pharmacy, Turkey *"Promising Biological Activity Profile and Phytochemical Screening of Verbascum L. Species"*
16.30-16.50	Latifah K. Darusman, Bogor Agricultural University, Biopharmaca Research Center, Indonesia *"Acetylcholineseterase Inhibitory Activity of Individual and Botanical Extracts Combination From Indonesian Traditional Medicine Used to Treat Memory Impairment"*
16.50-17.10	Mohamed Mahmoud Elseweidy, Zazazig University, Faculty of Pharmacy, Egypt *"Inhibitors of Cholesteryl Ester Transfer Protein Activity as Derived from Natural Products, Evaluation of Its Potency in Experimental Hyperlipemic Rabbits"*
17-10-17.30	**COFFEE BREAK**
	Chairperson: Khozirah Shaari
17.30-18.00	M. Khalid Ashfaq, University of Mississippi, National Center for Natural Product Research, USA *"Potential Idiosyncratic toxicity of herbal products"*
18.00-18.20	Bayyinatul Muchtaromah, Islamic State University of Maulana Malik Ibrahim Malang, Indonesia *"Effect of Eart Worm (Lumbricus Rubellus) Flour Against Histological Profile of Several Organs and Transaminase Enzyme Level in Rat That Infected by Salmonella typhi"*
18.20-18.40	Atia-tul Wahab, University of Karachi, International Center for Chemical and Biological Sciences,Pakistan *"Inhibition and Structural Biology of α-Glucosidase- an Approach Towards the Treatment of Diabetes"*
18.40-19.00	Jun Wu, Marine Drugs Research Center, College of Pharmacy, Jinan University, Guangzho, P. R. China. *"Chemical Diversity of Natural Products from Mangrove Plants: New Face, New Challenge, and New Opportunity"*
19.00-19.20	Hao Gao, Institute of Traditional Chinese Medicine & Natural Products, College of Pharmacy, Jinan University, Guangzhou , People's Republic of China *"Research on* effective substances *and active components of traditional Chinese medicines with the effects of clearing heat and detoxifying"*

Thursday, 6 June, 2013

HOUR	ACTIVITY
	Chairperson: M. Khalid Ashfaq
09.00-09.40	**K. Hüsnü Can Başer,** Anadolu University, Faculty of Pharmacy, Turkey "Essential Oils of The Origanum Species of Turkey"
09.40-10.10	**Tayfun Ersöz,** Hacettepe University, Faculty of Pharmacy, Turkey *"Plants Are Innocent; Preparations Are Not!"*
10.10-10.40	**İlkay Orhan,** Gazi University, Faculty of Pharmacy, Turkey *"Marine and Fresh-Water Organisms – Rewarding Sources for Drug Discovery and Experience from Turkish Waters"*
10.40-11.00	**Serdar Karakurt,** Middle East Technical University, Faculty of Sciences, Turkey *"Investigation of Effects of Folk Medicinal Plant Epilobium hirsutum L. on Carcinogen and Drug Metabolizing Cytochrome P450 Dependent and Antioxidant Enzymes"*
11.00-11.30	**COFFEE BREAK**
	Chairperson: İlkay Orhan
11.30-12.00	**Osman Nidal Özeş,** Akdeniz University,Faculty of Medicine, Turkey *"Isolation of anti-neoplastic drug candidates against metastatic Breast cancer "*
12.00-12.30	**Canan Karaalp,** Ege University, Faculty of Pharmacy, Turkey *"Phytochemical and biological studies on Anatolian Centaurea L. species"*
12.30-12.50	**Hanny C. Wijaya,** Bogor Agricultural University, Biopharmaca Research Center, Indonesia *"The Implementation of Medicinal Aromatic Plant Extract In Functional Foods Development: A Case Study on "Cajuputs Candy" Development"*
12.50-13.10	**Ayşe Nalbantsoy,** Ege University, Faculty of Engineering, Turkey *"Immunomodulatory Effect of Cycloartane-Type Triterpenes from Astragalus Species"*
13.10-14.10	**LUNCH**
	Chairperson: Hidetoshi Yamada
14.10-14.40	**Juerg Gertsch,** University of Bern, Institute of Biochemistry and Molecular Medicine, Switzerland *"Anti-stress, anti-inflammatory and analgesic properties of medicinal plants and natural products that target the endocannabinoid system"*

14.40-15.10	**Şebnem Harput**, Hacettepe University, Faculty of Pharmacy, Turkey *"Natural Compounds as Leads to Anticancer Agents: Clinical Evaluations and Investigations"*
15.10-15.40	**COFFEE BREAK**
	Chairperson: Şebnem Harput
15.40-16.00	**Roslida Abdul Hamid**, University Putra Malaysia, Department of Biomedical Sciences, Malaysia *"Ardisia Crispa Root Exhibits Cyclooxyenase-2 (Cox-2) Inhibitory Properties in Suppressing Angiogenesis"*
16.00-16.20	**Balakyz Yeskaliyeva**, Al-Farabi Kazakh National University, Department of Chemistry, Kazakhstan *"Chemical Investigation of Some Species of Genus Climacoptera"*
16.20-16.40	**Galiya Irmukhametova**, Al-Farabi Kazakh National University, Department of Chemistry, Kazakhstan *"Development of New Forms of Hydrogel Treatment Herbal Remedies Based on Green Raw Materials of Kazakhstan"*
16.40-17.00	**Faten Mezni**, INRGREF, Tunisia *"Antifungal activity of Pistacia lentiscus fixed oil and its phenolic compounds"*
17.00-18.00	**POSTER SESSION* Discussion Leader: K. Hüsnü Can Başer**
18.00-19.00	**COMSATS Meeting**

***Poster Session (09.00-18.00)**

Friday, 7 June, 2013

HOUR	ACTIVITY
	Chairperson: Osman Nidai Özeş
09.00-09.30	**Hasan Kırmızıbekmez**, Yeditepe University, Faculty of Pharmacy, Turkey *"Phytochemistry, chemotaxonomy and biological activity of Digitalis species from flora of Turkey"*
09.30-10.00	**Suna Timur**, Ege University, Faculty of Science, Turkey *"Imaging guided targeted therapy: Combination of natural products and polymeric platforms"*
10.00-10.20	**Farzana Shaheen**, University of Karachi, International Center for Chemical and Biological Sciences, Pakistan

	"Synthetic and Biological Studies of Proline-Containing Cyclic Peptides"
10.20-10.50	**Nilüfer Orhan**, Gazi University, Faculty of Pharmacy, Turkey *"An Ethnopharmacological Approach to Diabetes Mellitus: In vivo and in vitro Studies on Traditional Medicines of Anatolia"*
10.50-11.20	**COFFEE BREAK**
	Chairperson: Jun Wu
11.20-11.40	**Salih A. Bazaid**, Taif University, Faculty of Science, Kingdom of Saudi Arabia *"Characterization of the phytochemical constituents of Taif rose and its antioxidant and anticancer activities"*
11.40-12.00	**Faten Mezni**, INRGREF, Tunisia *"Quantification of sterols, carotenoids and tocopherols in Pistacia lentiscus fixed oil"*
12.00-12.20	**Amir Reza Jassbi**, Shiraz University of Medical Sciences, Medicinal and Natural Products Chemistry Research Center, Iran *"LC-MS-DAD Analyses of Biologically Active and Defensive Secondary Metabolites in Some Plants of Solanaceae From Iran"*
12.20-12.40	**A.Hamid A.Hadi**, University of Malaya, Department of Chemistry, Malaysia *"Phytochemicals and Bioactivity Study of Selected Malaysian Annonaceae Species"*
12.40-13.00	**Mohammad Yasin Mohammad**, Isra University, Faculty of Pharmacy, Jordan *"Biotransformation of clerodane diterpenoids by Rhizopus stolonifer and antibacterial activity of resulting metabolites"*
13.00-14.00	**LUNCH**
	Chairperson: Latifah K. Darusman
14.00-14.20	**İbrahim Horo**, Ege University, Faculty of Science, Turkey *"New triterpene saponins from Phryna ortegioides"*
14.20-14.40	**Melis Kuban**, Ege University, Faculty of Engineering, Turkey *"Biotransformation studies on cycloartane-type triterpenoids from Astragalus genus"*
14.40-15.00	**Closing Session : Prof. Dr. M. Iqbal Choudhary, Prof. Dr. Münir Öztürk, Prof. Erdal Bedir**

EFFECT OF EART WORM (LUMBRICUS RUBELLUS) FLOUR AGAINST HISTOLOGICAL PROFILE OF SEVERAL ORGANS AND TRANSAMINASE ENZYME LEVEL IN RAT THAT INFECTED BY SALMONELLA TYPHI.

Bayyinatul Muchtaromah[1], Amalia Fitri Andriani[2],

[1]Islamic State University Of Maulana Malik Ibrahim Malang Indonesia, [2]Islamic State University Of Maulana Malik Ibrahim Malang,

Based on empirical experience, earthworms can be used as a cure various diseases in humans, one of them is typhus that caused by Salmonella typhi bacterium. In East Java Indonesia, the use of earthworms as a traditional medicine has long been used as a cure typhoid fever. To facilitate the treatment, medicine was made in the form of powder or flour that made from Lumbricus rubellus as base material. The aims of this study to determine the optimal dose and duration of administration in the treatment of diseases caused by infection Salmonella typhi bacteria in vivo. This study was an experimental study using Completely Randomized Design with two factors. The first factor was the dose of flour worms (dose 32%, 48% and 60%). The second factor was the duration of administration (7 days and 14 days). The Results showed that the dose and duration of administration flour worms affected the repairing of histological profile of the small intestine, kidney and hepar and decreasing of transaminase enzyme level, but the interaction of dose and duration of administration did not show any significant effect. Effective dose that affected repairing several organs profile and decreasing Level of Transaminase enzyme was the concentration of 60%, and duration of administration which effectively was the duration of 14 days.

Keywords: Eartworm flour, Lumbricus rubellus, small intestine, kidney, hepar histology, rat, transaminase enzyme level, Salmonella typhi

INTERNATIONAL SYMPOSIUM ON MEDICINAL-AROMATIC PLANTS

CERTIFICATE

This is to certifiy that

BAYYINATUL MUCHTAROMAH

has attended the "International Symposium on Medicinal-Aromatic Plants" during 4-7 June, 2013; held at Kaya Izmir Thermal & Convention Centre at Balçova-İzmir, Turkey.

Prof. Dr. Munir OZTURK

4-7 JUNE, 2013

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